

ISTEP+ Performance Level Descriptors

Mathematics – Grade 6

Grade 6

Pass+

Pass+ students demonstrate advanced mathematical and problem-solving skills. Students solve complex problems with whole numbers and fractions, and demonstrate expertise in the areas of geometry, measurement, and data analysis and probability. *Pass+* students display highly developed skills with algebra concepts, including writing and solving equations and inequalities. *Pass+* students solve sophisticated problems, support their solutions, and generalize the results to other situations.

Examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Pass+* level include:

- Solve complex problems involving any/all of the following: integers, fractions, decimals, money, ratios, proportions, and percents (i.e., discounts, interest earned, and tips)
- Convert and compare fractions, decimals, and percents
- Write and solve 1 step equations and inequalities
- Evaluate numerical expressions
- Solve problems with integers and graph the results
- Find surface area and volume of right prisms and cylinders
- Use angle properties and formulas to solve problems (i.e., temperature conversions, circumference and area of a circle, complementary, supplementary, and vertical angles, and interior angles of a triangle and quadrilateral)
- Draw translations and reflections of shapes
- Organize, analyze, and interpret data in stem-and-leaf plots, charts, and histograms
- Calculate and compare mean, median, and mode
- Find possibilities of events
- Use data to predict future events and write the probabilities as fractions, decimals, and percents
- Analyze and solve problems by sequencing, prioritizing, and identifying relevant information; breaking complex problems into simpler ones; using words and symbols to support solutions; using simpler problems to solve more difficult ones; drawing mathematical conclusions; and determining reasonableness of solutions

Grade 6

Pass

Pass students demonstrate proficient mathematical and problem-solving skills. Students are capable of solving problems with whole numbers and fractions, and they are competent in the areas of geometry, measurement, and data analysis and probability. *Pass* students are skilled with algebra concepts, such as writing and solving equations. *Pass* students experience success when solving problems, communicating ideas, and applying mathematical knowledge to a variety of situations.

Examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Pass* level include:

- Solve problems involving any/all of the following: integers, fractions, decimals, money, ratios, proportions, and percents (i.e., discounts, interest earned, and tips)
- Write and solve 1 step equations
- Evaluate numerical expressions
- Graph points on a coordinate plane
- Find surface area and volume of right prisms and cylinders
- Use angle properties and formulas to solve problems (i.e., circumference and area of a circle, complementary, supplementary, and vertical angles, and interior angles of a triangle and quadrilateral)
- Organize data in charts and histograms and provide basic analysis/interpretation of the data
- Calculate and compare mean, median, and mode
- Find possibilities of events
- Use data to predict future events and write the probabilities as fractions
- Solve problems by breaking complex problems into simpler ones; making calculations in word problems; and determining reasonableness of solutions

Grade 6

Did Not Pass

Did Not Pass students demonstrate limited mathematical and problem-solving skills. Students may have difficulty when solving problems with integers and fractions, and the complexity of algebra may be an obstacle for *Did Not Pass* students. Also, math topics including geometry, measurement, and data analysis and probability can be a stumbling block for students. *Did Not Pass* students may have difficulty making decisions about how to approach problem-solving situations, how to communicate their ideas, and how to apply mathematical knowledge to other situations.

Examples of specific knowledge, skills, and abilities for Grade 6 students scoring at the *Did Not Pass* level include:

- Multiply and divide integers
- Add and subtract money in decimal form
- Evaluate basic numerical expressions
- Graph points on a coordinate plane
- Organize data in a chart
- Make calculations when solving basic word problems